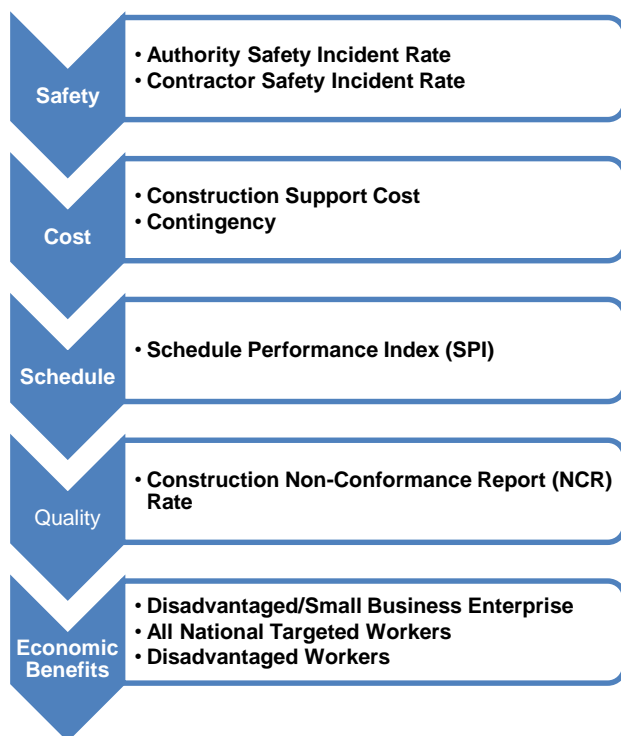


# Finance and Audit Committee Performance Metrics

## Construction Package 1 Contract No. HSR 13-06



### PERFORMANCE METRICS

The following performance metrics for Construction Package 1, a design-build project, are intended to give the Authority's Board of Directors and other key stakeholders a high level overview of the performance of this project.

Safety is a top priority and listed first, followed by key metrics for cost, schedule, and quality, as all are fundamental metrics for the management of the project. In addition and in support of the business aspects of the project, three key metrics are included for economic benefits. The Authority's management team, both on the project site and at the headquarters in Sacramento, will also review other aspects of the project's performance. The Authority will track and monitor the trends of these performance metrics to proactively manage the project.



Construction Package 1

Performance Metrics



Construction Package 1

**COST**



**Construction Support Cost**  
[Construction Support Cost] ÷ [DB Invoiced to Date Amount]



**Contingency**  
[Remaining Contingency Value] ÷ [Remaining Contract Value]

**SCHEDULE**



**Schedule Performance Index (SPI)**  
[Earned Value] ÷ [Planned Value]

Construction Package 1

QUALITY



**Construction Non-Conformance Report (NCR) Rate**  
[Non-Conformance Reports] ÷ [Construction Dollars Earned] \* [5,000,000]

ECONOMIC BENEFITS



**Disadvantaged/Small Business Enterprise**  
[Total Value of DBE/SBE/DVBE/MB Contracts Signed to Date with the DB Contractor] ÷ [DB Contract Value]

*Note: Participation is increasing towards the 30% goal, as the project progresses.*



**All National Targeted Workers**  
[National Targeted Worker Craft Hours to Date<sup>1</sup>] ÷ [Total Craft Hours to Date<sup>1</sup>]

Construction Package 1



**Disadvantaged Workers**  
[Disadvantaged Worker Craft Hours to Date<sup>1</sup>]  
÷ [National Targeted Worker Hours]

<sup>1</sup> Estimated Value

**Construction Package 1**
**Performance Metrics – Explanatory Details**

Category	Description
<b>General</b>	<b>Data Period</b>
Description	The Performance Metrics represent the period of 10/15/2013 (Notice to Proceed) to 9/15/2014.
<b>Safety</b>	<b>Authority Safety Incident Rate:</b> $[\text{Number of injuries and illnesses}] \div [\text{Employee hours worked}] * [200,000]$
Description	<ul style="list-style-type: none"> <li>The goal is to contain the incidence rate at <math>\leq 3.2</math>.</li> <li>Benchmark: The average incidence rate per the 2012 U.S. Bureau of Labor Statistics, U.S. Department of Labor for heavy and civil engineering construction is 3.2.</li> <li>Authority (CP01 Authority and Consultant on-site staff) has zero incidents of recordable injury or illness to date.</li> <li>The Consultant staff has 35,535 hours worked to date</li> <li>The incidence rate represents the number of nonfatal occupational injuries and illnesses per 100 full-time workers and is calculated as: <math>(N/EH) \times 200,000</math>, where            N = number of injuries and illnesses            EH = total hours worked by all employees during the calendar year            200,000 = base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year)</li> </ul>
<b>Safety</b>	<b>Contractor Safety Incident Rate:</b> $[\text{Number of injuries and illnesses}] \div [\text{Employee hours worked}] * [200,000]$
Description	<ul style="list-style-type: none"> <li>The goal is to contain the incidence rate at <math>\leq 3.2</math>.</li> <li>Benchmark: The average incidence rate per the 2012 U.S. Bureau of Labor Statistics, U.S. Department of Labor for heavy and civil engineering construction is 3.2.</li> <li>Design-Build Contractor (DB) has one (1) incidents of recordable injury or illness to date.</li> <li>Design-Build Contractor (DB) has 229,860 hours worked to date.</li> <li>The incidence rate represents the number of nonfatal occupational injuries and illnesses per 100 full-time workers and is calculated as: <math>(N/EH) \times 200,000</math>, where            N = number of injuries and illnesses            EH = total hours worked by all employees during the calendar year            200,000 = base for 100 equivalent full-time workers (working 40 hours per week, 50 weeks per year)</li> </ul>
<b>Cost</b>	<b>Construction Support Cost:</b> $[\text{Construction Support Cost}] \div [\text{DB Invoiced to Date Amount}]$
Description	<ul style="list-style-type: none"> <li>The goal is to keep the support cost at <math>\leq 6\%</math>.</li> <li>Benchmark: Transit Cooperative Research Program (TCRP) Report 138 is an industry resource for understanding soft costs and was sponsored by the FTA. Construction Administration &amp; Management should be in the range of 5% to 6% of construction costs.</li> <li>The Construction Support Cost encompasses the Project &amp; Construction Management Team invoiced to date amount = \$5,804,177</li> <li>The DB Invoiced to Date Amount = \$87,717,878</li> </ul>
<b>Cost</b>	<b>Contingency:</b> $[\text{Remaining Contingency Value}] \div [\text{Remaining Contract Value}]$



**Construction Package 1**

Description	<ul style="list-style-type: none"> <li>The goal is contain the contingency in the range of 10-20%.</li> <li>Benchmark: As per guidelines by Federal Transit Authority cost for contingency should be in the range of 10% to 20% of construction cost during the 15% - 30% Preliminary Design Report.</li> <li>(Note: The contingency percentage will be adjusted per FTA guidelines as design and construction move forward.)</li> <li>The Remaining Contingency = [Current Allocated Contingency Amount] – [Executed Change Orders] = \$153,573,937</li> <li>The Remaining Contract Value = [Revised DB Contract Amount] – [FRA Approved Invoices to Date] = \$960,299,951</li> </ul>
<b>Schedule</b>	<b>Schedule Performance Index (SPI):</b> $\text{Earned Value (EV)} \div \text{Planned Value (PV)}$
Description	<ul style="list-style-type: none"> <li>The goal is to achieve <math>\text{SPI} \geq 1</math>, which is same as <math>\geq 100\%</math> when expressed in percent.</li> <li>Benchmark: As per guidelines by PMI (Project Management Institute, World Wide) the SPI should be <math>\geq 1</math> or 100%.</li> <li>At a value of 100% the Project is forecasted to complete on-time.</li> <li><math>\text{EV} = \text{Percent Complete} \times \text{BAC (Budget at Completion)}</math></li> <li><math>\text{PV} = \text{Planned Value}</math></li> <li>Planned Value in dollars to be spent to data date is derived from the approved baseline schedule, which stands at \$183,109,111 through the data date.</li> </ul> <p><i>Note: The approved baseline schedule is being revised to reflect changes in planned right-of-way and 3<sup>rd</sup> party agreement dates since bid time.</i></p>
<b>Quality</b>	<b>Non-Conformance Report (NCR) Rate:</b> $[\text{Construction Non-Conformance Reports}] \div [\text{Construction Dollars Earned}] * [5,000,000]$
Description	<ul style="list-style-type: none"> <li>The goal is to maintain a NCR rate of <math>\leq 1.0</math>. This represents 1 construction non-conformance report per \$5M of construction work performed.</li> <li>The approved baseline schedule currently allocates approximately \$840,000,000 to construction activities. This equates to an estimated 168 NCRs over the duration of construction to stay within the target.</li> <li>This metric is a measure of the quantity of non-conforming work issues identified on the project, based on the KPI Standard organization's Heavy and Civil Engineering Construction definition.</li> <li>The target rate identified is preliminary and is derived from the professional judgment of multiple quality managers and construction professionals. This metric will be measured and trended for refinement throughout the life of the CP1 project and across multiple High Speed Rail construction packages to develop a performance standard for the High Speed Rail.</li> </ul>
<b>Economic Benefits</b>	<b>Disadvantaged/Small Business Enterprise:</b> $[\text{Total Value of DBE/SBE/DVBE/MB Contracts Signed to Date with the DB}] \div [\text{DB Contract Value}]$
Description	<ul style="list-style-type: none"> <li>The current goal is achieve <math>\geq 30\%</math></li> <li>Benchmark: As the project design is refined, the DB executes DBE/SBE/DVBE/MB subcontracts for specific portions of work. To date, the DB has not provided a schedule of when all of the DBE/SBE/DVBE/MB subcontracts will be signed. The Project and Construction Management Team set goals of 10% by 1/14, 20% by 4/2014 and 30% by 7/2014.</li> <li>DB has executed subcontracts with DBE/SBE/DVBE/MB firms totaling 28.2% of the current DB Contract Amount.</li> <li>The DBE/SBE/DVBE/MB % goal has increased to 30% as of the July 2014 reporting period.</li> </ul>

**Construction Package 1**

<b>Economic Benefits</b>	<b>All National Targeted Workers:</b> $\frac{[\text{National Targeted Worker Craft Hours to Date}]}{[\text{Total Craft Hours to Date}]}$
Description	<ul style="list-style-type: none"> <li>The goal is <math>\geq 30\%</math> as identified in the contract.</li> <li>Benchmark: The Community Benefits Agreement requires a minimum of 30% of all hours of Project Work shall be performed by National Targeted Workers. The data is officially reported quarterly and estimated monthly by the DB.</li> <li>DB has 10,866 National Targeted Worker craft hours to date.</li> <li>DB has 13,958 craft hours to date.</li> </ul>
<b>Economic Benefits</b>	<b>Disadvantaged Workers:</b> $\frac{[\text{Disadvantaged Worker Craft Hours to Date}]}{[\text{National Targeted Worker Hours to Date}]}$
Description	<ul style="list-style-type: none"> <li>The goal is <math>\geq 10\%</math> as identified in the contract.</li> <li>Benchmark: The Community Benefits Agreement requires a minimum of 10% of all National Targeted Worker hours shall be performed by Disadvantaged Workers. The data is officially reported quarterly and estimated monthly by the DB.</li> <li>DB has 4236 Disadvantaged Worker craft hours to date.</li> <li>DB has 10866 National Targeted Worker hours to date.</li> </ul>